

## NEW PUBLICATIONS.

## A GREAT MATHEMATICIAN.

LIFE OF SIR WILLIAM ROWAN HAMILTON. By ROBERT PERCEVAL GRAVES, M. A., Vol. I, \$10, pp. 602. Dens. in Hodges, Figgis & Co., London, Longman, Green & Co.

There is much that is entertaining and a great deal that is pedantic and tiresome in this memoir of the mathematician who, when he was only twenty-one years old and still an undergraduate at Dublin, was made Professor of astronomy in the University and astronomer of Ireland. The book is crowded with letters, many of them of no possible public interest, many of them wholly unimportant, except to those skilled in the science to which Hamilton devoted his life. Mr. Graves, being no mathematician himself, has not been able to invest with the charm of scientific enthusiasm his records of Hamilton's work; neither has he succeeded in imparting literary grace to his chronicle.

Wordsworth once said that Coleridge and Hamilton were the two most wonderful men, taking all their endowments together, that he had ever met. Hamilton, indeed, began to be "wonderful" at a very early age. At three years old he could read the Bible; at four years and five months he was accomplishing the feats thus related by his mother in a letter to her sister:

Ile is one of the most surprising children you can imagine; it is scarcely credible: he not only reads well, but with such nice judgment and point, that it would shame many who have finished their education. His reciting is astonishing, and his clear and accurate knowledge of geography beyond belief;

he even draws the countries with a pencil on paper, and will cut them out, though not perfectly accurate, yet so well that anybody knowing the countries could not mistake them: but you will think this nothing when I tell you that he reads Latin, Greek, and Hebrew! It is truly funny to see the faces some of the Wise Heads put on after examining him; they first look incredulous; then they look as if he said it was a parrot word; but after an examination of various books and various parts of the same book, and when sometimes, to correct those who from long neglect to read these dead languages have forgotten some letters, he puts them in—if they say no, he says, "well, but it is so," and when they must agree with him, he says, "now see the advantage of attending to what you read"—they stare, then say that it is wrong to let his mind be so overstocked. They cannot suppose that all this is learned by him as play, and that he could no more speak or play as children in general, than he could. Everything he must have a reason for. The things at dinner are the different countries of the world; if he wants his handkerchief tied round his throat, it is—please put that round my lathomus; if his eye itches, it is his eye or his west. He reads the Hebrew with points. H. H. is learning it without. She, being rather incredulous, brought her book, to see the difference of pronunciation, and what was the advantage of points. She read for him, but he got so vexed at her persevering to pronounce the words so differently from what it is with points, that he began to cry most pitifully, and came and told me she went to examine him, and that she knew nothing about it at all, that she called her letters wrong, and could not say *Hachamah* as it should be said, or any other part so more than a dunce. We had some trouble to pacify him, and after that, if he was asked to read Hebrew, he always asked, "do you read with points?" But by this time you are completely tired of a mother's enthusiasm about her prodigy of a son."

His devotion to Hebrew did not prevent him from undertaking other Oriental languages. Before he was ten years old he was master of all those languages except the minor, and comparatively provincial ones. Already a proficient in Sanscrit, at nine years old and nine months he undertook the study of Chinese. That was in 1815 and it was with great difficulty and at much expense that the Dublin solicitor, his father, procured the necessary books in London—"Willy" was not occupied only with these grave studies; he cultivated the Muse as well. It is related that when called out of bed by his aunt one morning—the child being then six years and nine months old—he gravely responded that "Thong Diana had long withdrawn her pale light yet that Aurora had scarce unbared her gates, and therefore he begged to allow to lie still." At fourteen he became the author of a poem on Society in which he recorded his conviction of the superiority of the female sex as entertaining companions; and this "dropping note poetry" he continued more or less throughout his life. Yet with all these intellectual exertions the boy remained a robust and healthy-minded little fellow, fond of all joyous exercises, not unacquainted with mischief, and filling his little journals with notes of games and athletic achievements as well as with the records of his first experiments in mathematics.

At seventeen he began the independent investigations which led to his Theory of Systems of Rays, thus entering at this early age upon the path of original mathematical discovery. From that time onward science became his master passion, with results which have made his name memorable. While hardly at his majority his remarkable attainments and his high stand at the University made him a celebrity in Dublin, but he maintained then as ever a singular modesty and humbleness. The man had no affectations; the simplicity of his character was admirable and winning. He had a boisterous and warm-heartedness; witlessness sparkled often on the grave current of his teaching; and discussions on the poets were heard almost as much from his lips as disquisitions on Astronomy.

Mr. Graves has presented in this volume far too many of Hamilton's verses, which, while affecting one, as Wordsworth said, "as evidences of high-and-pure-mindedness, from which human-mindedness is incomparable," are still commonplace and a little wearisome at last. Hamilton cultivated his poetical faculty of principle. "The pleasure of intense thought," he once wrote to a friend, "is so great, the exercise of mind afforded by mathematical research so delightful, that having once fully known, it is scarce possible ever to resign it. But it is the very passionate love of Science for Science which makes me fear its unlimited indulgence. I would preserve some other taste, some rival principle; I would cherish the fondness for classical and for elegant literature which was early infused into me, . . . not in the vain hope of eminence, not in the idle affectation of universal genius, but to expand and liberalize my mind, to multiply and vary its resources, to guard not against the name but against the reality of being a mere mathematician. For while there is no one study the exclusive attention to which has not a dangerous effect in the formation of character perhaps, as there is none more fascinating so there is none in this respect more dangerous than Mathematics." Wordsworth and Hamilton were warm friends, and the mathematician submitted not a few of his verses to the criticism of the poet. The letters in which Wordsworth made these criticisms are given by Mr. Graves and are amusing in their sober consideration of very indifferent poetry. Now and again they offer suggestions of much value and interest. The two friends found never-failing enjoyment in their literary discussion. There is an interesting account by Eliza May Hamilton, the mathematician's sister, of a visit paid by Wordsworth to the Observatory.

"Here he comes," exclaimed Sydney, after we had been a long time alone, and were waiting for the hour when his arrival or rather return, for he had arrived in New York, was to be expected with my brother. I looked, and saw walking up the avenue with William a tall man, with gray hair, a brown coat, and hankie trousers, on whom Smoke, our black greyhound, was jumping up in a most friendly manner, not by any means his wont with every stranger.

"I am a poor soul," Wordsworth was in the room which I occupy. "Allow me to introduce my sister to you, Mr. Wordsworth," said William, and so we met.

There was a slight touch of rusticity and constraint about his perfect gentleness of manner, which I liked—an absence of that entire ease of manner to which strangers are always tenacious of. He was not very much at home, and had an unaffected simplicity and dignity and peacefulness of thought that were not striking. He was not at all a loquacious man nor striking, nor seemed inclined to approach with any degree of intimacy even those with whom he knew a good deal, at the same time, one who met every advance with a part of others with a ready and attractive stability. Other men did not seem necessary to him, or to the existence of his happiness, so that his

simplicity with the happiness and sorrow, the good and evil of the whole creation as it discovers itself in his poetry, were one of the feelings of his natural character being very peculiar.

There was such an indescribable superiority, both intellectual and moral, stamped upon him in his very silence, that even those who did not know him so well as myself, could discern the beautiful coloring of his benevolence that could descend through love to the least and most insignificant things among the works of God, or connected with the weal or woe of man. I think it would be quite impossible for any one who had once been in Wordsworth's company ever again to think anything he has written silly.

"When we next entered the drawing-room, we found him seated entirely there, and reading something (10 to 25) a newspaper. When we entered, the poet hastily turned, with a gesture of politeness, moving his face, and indeed his whole body, in the direction to which we passed; but after a commonplace word or two, he spoke to us, as we quickly took our seats at the window, in a way and in a listening attitude with the weal or woe of man. I think it would be quite impossible for any one who had once been in Wordsworth's company ever again to think anything he has written silly.

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"It was his own "Excursion" he was reading, in consequence of a discussion having arisen between them, in which William had alluded to a passage in that poem which as well as I could collect, did not quite please him by his meaning.

"Wordsworth had finished the passage, in a very low, musing tone, moving his finger under every line as he went along, and seeming as he read to be quite rapt out of this world.

"I felt a tear gathering in my eye as I looked at him, and at that moment, I cannot exactly tell why, he seemed, to me *sublime*; and I involuntarily thought of the epithet applied to a greater poet perhaps, but to him, a living, breathing, pure specimen of an *apotheosis*—a divine old man."

"He then defended himself, with a beautiful mixture of warmth and temerity from the accusations of any want of reverence for Science, in the proper sense of the word—Science, that is to say, the mind to the contemplation of God's works, and which was pursued, but not as its primary and greatest object; but as for all other science which was a collection of facts for their own sake, or to be applied merely to the material uses of life, he thought it degraded instead of raising the species. All science which was waged was with a view to extinguish imagination in the mind of man, and leave it in a kind of naked knowledge of facts, etc., but thought, much worse than useless; and what is disseminated in the present day under the title of "useful knowledge," being disconnected, as he thought it, with God and everything else, was of a dangerous and delusive tendency. For his part, rather than have his mind educated in this kind of science, to the exclusion of imagination, and of every consideration but what related to our bodily comforts, power and greatness, he would much prefer being a superstitious old woman."

"My brother said of some passage that, "so far as it went," I quite agreed with it, but "it would not be a good deal to say that it would," and Wordsworth gave a good-humored smile; "and if I may allow me to explain my sentiments first, I have a great desire to hear you afterwards."

"He then entered very much at large on the scope of his design, repeating that Science, when legitimately pursued, for the purpose of elevating the mind to God, he venerated. The only class of science which he despised, was that which was applied to the material uses of life, he thought it degraded instead of raising the species. All science which was waged was with a view to extinguish imagination in the mind of man, and leave it in a kind of naked knowledge of facts, etc., but thought, much worse than useless; and what is disseminated in the present day under the title of "useful knowledge," being disconnected, as he thought it, with God and everything else, was of a dangerous and delusive tendency. For his part, rather than have his mind educated in this kind of science, to the exclusion of imagination, and of every consideration but what related to our bodily comforts, power and greatness, he would much prefer being a superstitious old woman."

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